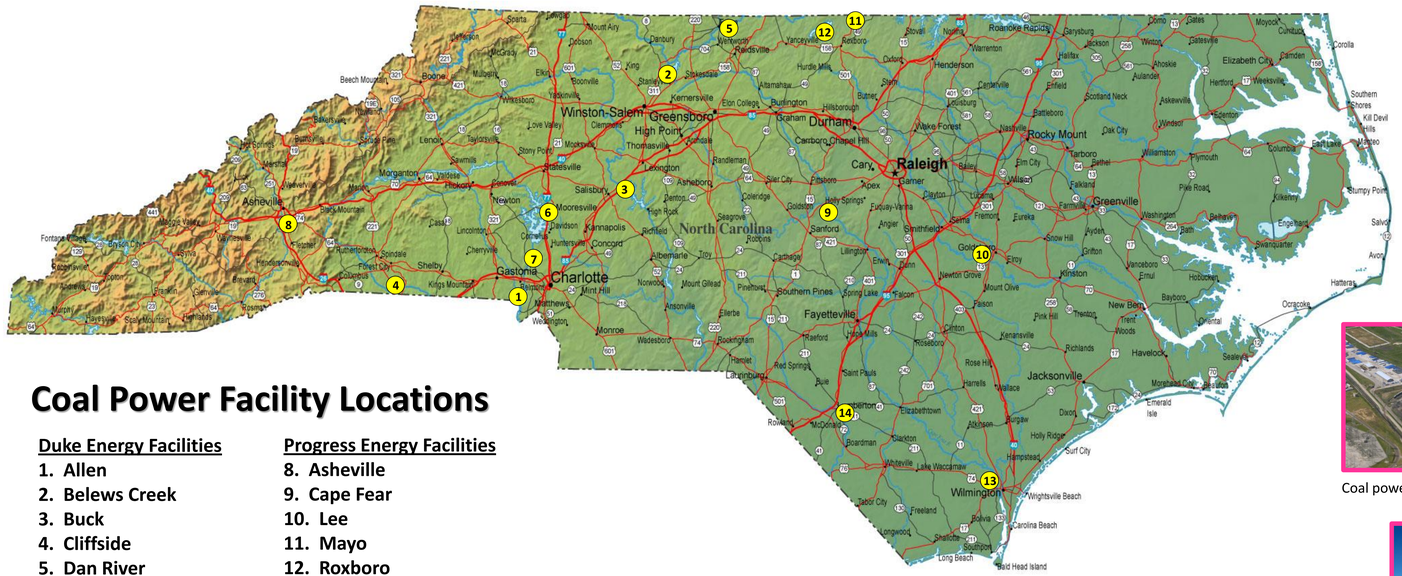
# North Carolina's Coal Ash Ponds




## Coal Power Facility Locations

**Duke Energy Facilities**

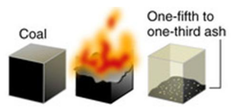
1. Allen
2. Belews Creek
3. Buck
4. Cliffside
5. Dan River
6. Marshall
7. Riverbend

**Progress Energy Facilities**

8. Asheville
9. Cape Fear
10. Lee
11. Mayo
12. Roxboro
13. Sutton
14. Weatherspoon

## What is coal ash?

Coal ash is one of the by-products from burning coal. After coal is burned, one-fifth to one-third of it's volume remains in the form of ash.




In 2008, more than 136 million tons of coal ash were generated in the United States. Of this amount, approximately:

- 34 % (46 million tons) were land-filled
- 22% (29.4 million tons) were disposed of in surface impoundments
- 37% (50.1 million tons) were beneficially used
- 8% (10.5 million tons) were placed in mines

Coal ash has concentrated amounts of elements present that may include arsenic, chromium, lead, selenium and other elements. These elements have the potential to contaminate air and water resources if not managed properly.

### Kingston, Tennessee Spill

On December 22, 2008, approximately 1 billion gallons of coal ash sludge burst from a surface impoundment. This event triggered a more comprehensive study of coal ash impoundments across the United States.


## Beneficial Reuse of Coal Ash

Coal combustion products or "CCPs" may be permitted by the Aquifer Protection Section for beneficial reuse under 15A NCAC 02T .1200. CCP distribution programs are regulated in a similar manner to the residuals management program in that the CCP must meet specified quality standards prior to being distributed. Approved uses for CCP may include:

- Fuel for combustion for energy recovery
- Material for manufacturing (e.g. concrete products, brick products)
- Daily, intermediate, and final cover at landfill
- Material for traction control during snow and ice events
- Flowable fill for backfill of trenches for utility lines
- Soil nutrient additive, amendment, or other agricultural purpose
- Overlay for roads
- Bedding for pipes, railroad beds, and underground storage tanks
- Structural fill

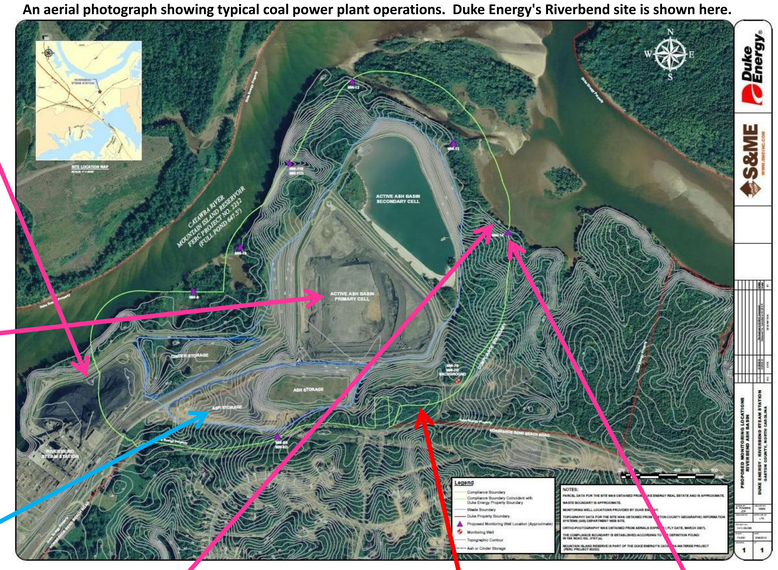
## Background

In 2010 and 2011, the Division of Water Quality assisted Duke Energy and Progress Energy in developing groundwater monitoring plans for each of their coal power facilities with ash ponds. These groundwater monitoring plans are implemented through each facility's National Pollutant Discharge Elimination System (NPDES) permits. If monitoring reveals a potential violation of the water quality standards, the Division of Water Quality will work closely with each company to determine appropriate measures necessary to address and remedy the issue.

Coal power plan and raw coal piles.


After being burned, the ash from the coal is sluiced with water from the plant into ponds where the solids settle out.

An aerial photograph showing typical coal power plant operations. Duke Energy's Riverbend site is shown here.




Coal ash that settles out in the ponds gets dredged out and stored in piles or on-site landfills. This ash can also be applied in other applications for beneficial reuse such as structural fill and in building materials.


After the solids settle out in the ponds, the water is then discharged into surface water.


Compliance boundaries are established at a distance from the waste boundary as determined by 15A NCAC 02L .0107.

Groundwater monitoring wells are installed at the compliance boundary to determine groundwater compliance.

## What is a Compliance Boundary?

A compliance boundary is defined as a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded. For disposal systems individually permitted prior to December 30, 1983, the compliance boundary is established at a horizontal distance of 500 feet from the waste boundary or at the property boundary, whichever is closer. For systems individually permitted after December 30, 1983, the compliance boundary is established at a horizontal distance of 250 feet from the waste boundary or 50 feet inside the property boundary, whichever is closer. With the exception of one facility, all of Duke Energy and Progress Energy's North Carolina coal ash facilities were individually permitted prior to December 30, 1983.